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Title: TR (Trinity) Hot Run

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TR (Trinity) Hot Run

Historic document describing the schedule for preparations leading up to the Trinity test. Written by Norris Bradbury.

K-T-Bainbridge
TR-HE

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MEMORANDUM

FINAL DETERMINATION
UNCLASSIFIED
L. M. Redman
JAN 09, 1981

9 July 1945

CLASSIFICATION CANCELLED
PER DOC REVIEW JAN. 1973

TO: Personnel Concerned

FROM: Comdr. N. E. Bradbury

SUBJECT: TR Hot Run

1. The firm dates for the TR Hot Run are as follows:

Saturday, 7 July, 1700	Schaffer Shake Test ready to deliver
Sunday, 8 July, 0830	Assemble Schaffer Shake Test, load on truck
Monday, 9 July, 0830	Schaffer Shake Test charge given eight-hour road test. Remove polar cap and dummy plug and inspect top of charge only after three hours riding.
Tuesday, 10 July, 0830	Completely disassemble charge and inspect each casting for condition. Verbal report of charge condition by 1630 Tuesday PM. Reassemble and remove.
Tuesday, 10 July, 1730	TR and Creutz charges ready for delivery. Start papering. Arrange for night shift if necessary to paper charges. Additional personnel will be furnished as required.
Wednesday, 11 July, 0830	Information will be furnished as to which charges will be used in TR shot and which in Creutz shot. Separate charges. Complete papering of TR charges. Complete papering of Creutz charges (use separate groups--request additional personnel as needed).
Wednesday, 11 July, 1730	Both charges completely papered. Work another night shift if necessary to complete this job. Request personnel as necessary. This job must be done so that assembly of both charges can start on Thursday, 12 July, at 0830.
Thursday, 12 July, 0830	Use two groups--one at V Site to assemble TR charge (Lt. Schaffer supervise), and one at Pajarito for Creutz charge (Mr. North supervise). Tamper needed by 1000 at V Site.
Thursday, 12 July, 1500	Assembly of TR charge complete. Notify interested personnel that it is ready for inspection if desired.
1600	Seal up all holes in case; wrap with scotch wrap (time not available for strippable plastic), start loading on truck. Tie down to truck body.

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Thursday, 12 July, 1600 — Box charges, inner and outer, with 2 spares for each. Stow on truck so they cannot shift, and are padded from truck bottom.

Friday, 13 July, 0001 — TR charge starts on its way to TR. G-2 escort cars fore and aft. G. B. Kistiakowsky to ride in fore car.

Friday, 13 July, 1200 — TR charge arrives at base of tower. Following personnel to be at base of tower by 1300:

N. E. Bradbury
G. B. Kistiakowsky
R. S. Warner
H. Linschitz
Lt. W. F. Schaffer
T/3 Jercinovic
T/3 Van Vessem
A. B. Machen

Friday, 13 July, 1300 — Assembly starts at this time.

A. Unloading at TR

1. Truck backs up into base of tower.
2. Tarpaulin is removed, cradle and assembly unlashed.
3. Main hoist lifts sphere off cradle with spreader bar or tongs.
5. Drive truck out from under sphere.
6. Place new cradle under hoist and lower sphere suspended by tongs into it with main hoist.

B. Assembly at TR

1. Sphere is now resting on cradle with polar cap up.

2. Detach main hoist; pick up gently with hook, lower, pull out over gadget, and secure.

3. With jib hoist, remove polar cap and dummy plug. Special polar cap and funnel put in place. Gadget now belongs to tamper people (at about 1400 on Friday). Prior to their taking over, a fifteen minute period will be available for generally interested personnel to inspect the situation. After this time, only G engineers and two representatives from the assembly team will be present in the tent.

4. G Engineers work till 1600 with active material insertion.

5. Lights must be available to work in tent at night.

6. At 1600, dummy plug hole is covered with a clean cloth, and He-Me

people take over. Attach tongs to tent peak by chain. Place tongs on trunnion. Lift sphere and turn over with jib hoist for HE insertion. Return sphere to cradle.

7. Place in hypodermic needle <u>in right place.</u> (Note: check this carefully.)

8. At this point another 15-minute period will be availabe for inspection by generally interested personnel.

9. Insert HE - this to be done as slowly as the G Engineers wish. Have on hand extra paper if charges are slightly small. Also grease and hypodermic needle grease gun. Be sure glass tape and/or shim stock shoe horn is on hand.

10. When HE has been inserted and He-Me people and G Engineers are satisfied that all is OK, another inspection period of 15 minutes will be available.

11. Lift sphere with tongs by chain to tent peak. Return to polar cap up position. Remove special polar cap with jib hoist; replace with regular polar cap.

12. Turn sphere over with tongs, chain and tent peak so that lug is up.

13. Place sphere in special cradle for tower top, and attach cradle firmly to sphere. Remove all tongs, chains, etc. and generally clear deck.

14. Leave tent in place till morning.

NOTE: The HE vacuum cup has arrived and appears to be extremely useful in handling HE charges. It is possible that the entire assembly may be done in the vertical position using the jib hoist and vacuum cup to lower the HE as slowly as the G Engineers wish. This would then require no handling between tent peak and tongs, and the sphere will be left overnight with the <u>cap up</u> and in small dishpan.

15. It is anticipated that we will leave the tent (guarded) at about 2200.

Saturday, 14 July, 0800 <u>Lift to tower top</u>

1. Remove tent with main hoist.

2. Turn over with main hoist and place on special cradle. (This operation necessary only if not previously done as it would not be in a vertical assembly.)

3. Rig guide lines.

4. Lift to tower top. Ready for X unit at 0900.

5. Bring up G Engineer footstool.

Saturday, 14 July, 0900 — Operations aloft

1. Wiring of X unit proceeds direction of and by He-Me people. Note that X unit should have cables attached to cone prior to this time.
2. Detonators are staked to coax by Caleca of detonator group.
3. Detonators are placed by Caleca to conform with requirements of informer switches. HE people stand by to criticise potential rough handling.
4. Detonators and informers in place, verified by Greisen.
5. X unit and informer unit safed--verified by Bradbury or Kistiakowsky.
6. X-7 will provide all detonators, informer switches, informer cables (adequate length), informer apparatus (where they get it is their business). X-5 will supply prepared detonator cables. X-6 will obtain detonator springs and other necessary gear from appropriate sources. X-6 will supply all fittings for wiring. Schaffer to check that all mechanical parts (nuts, bolts), etc. are supplied.
7. Note that once detonators are on sphere, no live electrical connection can be brought to X unit, informer unit, or anywhere else on sphere. Hence all testing must be done before sphere is lifted to tower. After that it is too late.

Saturday, 14 July, 1700 — Gadget complete

Sunday, 15 July, all day — Look for rabbit's feet and four leafed clovers. Should we have the Chaplain down there? Period for inspection available from 0900-1000

Monday, 16 July, 0400 — BANG!

General Notes

The same responsibility for procurement of items exists as in the dry run. Machen to check his list for parts left down there. Could they have been stolen? Schaffer to get vacuum cup and two pumps ready to go down. Have glass tape handy to tie charge to hook of jib hoist to guard against vacuum failure.

It is assumed that the following things will have been done at TR:

Guide wire hold down improved
Method of holding down tent improved
Ionization chambers either not connected to pipe coax or off to one side. Wilson's chamber to be connected later; Rossi's chamber to be pulled off to wall side.
Rig a roped off area about base of tower allowing 20 ft. clear space. Provide "Keep Out" signs (Oppenheimer). All spectator personnel stay outside this area except at inspection times.

The following points were noted in the dry run assembly. Personnel listed should take appropriate steps:

Shim stock shoe horn was missing. (Machen)
Longer screws needed for X-Unit cable clamps. (Schaffer)
Sphere not grounded. (Schaffer)
All detonators off floor; all detonator cables off floor. (Greisen)
Shorter screws could be used for detonator leaf springs. (Schaffer)
Washers needed for informers. (Greisen)
Cable lengths too short? (Hornig)
Headless screws to protect screw holes (not necessary with scotch wrap).
Need good cover for HE hole while turning over. (Schaffer)
Need proper clevis for attaching tongs to main hoist. (Henderson)
Need better method of getting up tent and securing. (Henderson)
Upper platform should be tested with concrete weight. (Oppenheimer)

It will not be possible to permit any personnel on the assembly platforms other than those actually engaged in assembly operations. However, personnel may observe the operations from beyond the roped off area, and may inspect the assembly at times as noted in the above operations list.

N. E. Bradbury

NEB:he

Distribution:
J. R. Oppenheimer
F. Oppenheimer
G. B. Kistiakowsky
Major Ackerman
R. W. Henderson
R. S. Warner
Lt. Schaffer (2)
A. B. Machen
Morrison
Holloway
R. F. Bacher
N. Ramsey
K. T. Bainbridge
Lt. Comdr. Keiller
K. Greisen
D. Hornig
H. Linschitz
R. W. Carlson
John Williams
B. Rossi
R. Wilson